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HOW TO STUDY AGRICULTURAL MARKETING AND HOW NOT TO STUDY IT

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HOW TO STUDY AGRICULTURAL MARKETING AND HOW NOT TO STUDY IT

A Critique of the Analysis of Agricultural Market Performance

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Before we embark on a constructive critique of methodology and of the relations between data and conclusions in research using standard methodology, in other words before we ask how?, we should briefly ask why? Why study agricultural marketing? The value of research in agricultural marketing derives from the latter's importance in the development of agrarian economies. Its role is best regarded as having two aspects.

Firstly, through the mechanism of prices, and the accuracy with which price signals representing demand are transmitted through the marketing system, producers respond with varying degrees of sensitivity by allocating resources in production; and money, for which marketed crops are sold, commercialises production. Thus the first function of trade is allocative.

Secondly, it is through the mechanism of the marketing system that resources are transferred out of agriculture: raw materials for agro-industry, food for non-food-controlling populations (both urban and rural) and financial resources. The latter are transferred via the intersectoral terms of trade, via commodity taxation and via the use of profits of trade, be it private or public sector. Such resources may be reallocated directly or indirectly through the use to which savings are put, into private or public sector infrastructure, industry, commerce or agriculture. Thus the second function of trade is extractive.

It is the allocative role of agricultural marketing that has been most thoroughly researched. The extractive role is less well understood while no study yet combines

both. It is thus the study of the allocative efficiency in agricultural marketing systems which is the concern of this paper. The subject has been explored using "structure, conduct performance" methodology. Though this paper will be concerned primarily with performance - how you study the behaviour of marketing systems we begin by outlining the development of this methodology.

1. Structure conduct performance methodology

The mid and late sixties was an era of pioneering research in the economics of agricultural marketing in underdeveloped countries, a research effort largely by Stanford University, USA. In West Africa, teams from several American universities studied the systems of Sierra Leone (Illinois), Nigeria (Michigan State University, Stanford Research Institute and Stanford Food Research Institute), Kenya (West Virginia) and Ethiopia (Stanford Research Institute and Cornell) (resulting in for example, studies by Gilbert, 1970; Ilori, 1968; Thodey, 1968, 1969; and Whitney, 1968; See also Anthonio, 1968).

The application of a practical methodology for analysing market performance took place simultaneously in India (see the studies by Cummings, 1967; Lele, 1967 and 1971 from Cornell; Holmes, 1969; Jasdanwalla 1966; and Gupta, 1973) and Bangladesh (see Farruk, 1972 from Cornell). Essentially the same methodology is being used a decade later as identified by Harriss' study of rice marketing in Southern India (1979a b, by Hays' studies of cereals marketing (1975, 1976, 1977) and by Ejiga's study of cowpea marketing in Northern Nigeria (1977 from Cornell) and the studies for Niger and Upper Volta in the CILSS/Club du Sahel, 1977, "etude diagnostique" from the University of Michigan, (see Kohlers, 1977, Berg, 1977a and b).

The methodology used is an adaption of "structure, conduct, performance" analysis. This is an attempt to compromise between formal structures of perfectly

competitive markets in economic theory and empirical observations of organisational experience in the imperfect markets of the real world. It is a standard tool for market analysis in the U.S. and the U.K. (Bain, 1959; Bateman, 1976). Its purpose is to draw up a check list or analytical framework for a number of variables such that their approximation to conditions of "effective" or "workable" or "acceptable" competition may be evaluated. If a marketing system is judged effectively competitive then it follows that the efficiency with which resources are allocated within the system is maximised. The implication is that social efficiency and equity goals are also simultaneously maximised.

Market structure consists of "characteristics of the organisation of a market which seem to influence strategically the nature of competition and pricing within the market" (Bain, op.cit., p.7). In particular, these are the numbers of Nadars, the degree of seller and buyer concentration, entry conditions and the extent of agent and product differentiation. Clodius and Mueller add the distribution of market information and its adequacy in sharpening price and quality comparisons and in reducing risk (1967, p.345-50).

Market conduct is the "pattern of behaviour which enterprises follow in adapting or adjusting to the markets in which they sell (or buy)" (Bain, op.cit., p.9), in particular methods employed to determine price, sales promotion and co-ordination policies and the extent of predatory or exclusionary tactics directed against established rivals or potential entrants. Though it is not our main aim to criticise the study of structure and conduct, it needs to be suggested here that such research can usefully go much further. Mere numbers of traders do not indicate competitive conditions. They can equally well result from a combination of monopoly trade and subsistence petty commodity trade. Or their competitiveness may be ramified by relations of kinship or credit. In particular the relationship between commodity trading and money markets is essential to an explanation of

structure and conduct and needs to be carried out regardless of the fact that its inclusion complicates the final act of evaluation of market competitiveness.

Market performance represents the economic results of structure and conduct (Bain, op.cit., p.10-12), in particular the relationship between distributive margins and the costs of production of marketing services. In particular, time series price data are used to throw light on the degree of competition in marketing systems.

(i) through intermarket price correlation, to indicate the degree of market integration widely interpreted as an indicator of competition.

(ii) through static analyses of the relationship between components of the distributive margin: the shares of producers, and those of the various intermediaries - wholesalers and retailers, generally carried out for a limited geographical area.

(iii) through dynamic analysis of the distributive margin comprising

a) the relationships between transport costs and intermarket price differences (via graphical plots, via regression analyses and via the analysis of average margins) to indicate the competitiveness of interregional trade,

b) the relationships between processing costs and differences in the prices for different product forms in order to indicate the efficiency of product transformation,

c) the relationships between seasonal price fluctuations and storage costs to indicate market competitiveness through time (see Lele, 1971, for a detailed exposition of all these methods for 4 case studies in India).

(iv) through calculations of annual and longer term moving averages to investigate longer period cyclical changes in the price level.

About this methodology, which has achieved the status of orthodoxy Jones, whose responsibility it was to organise and co-ordinate the pioneering African research and to synthesise the results, asserts: "Primary emphasis in evaluating efficiency was placed on the determinants of price." The investigations were formulated in terms of commodities. "The desirability of pursuing a commodity approach became increasingly clear as price analysis and the field studies progressed" (Jones, 1968, p.96), and "In some ways the measurement of market performance as manifested by the behaviour of prices was more satisfactory than that based on identifying imperfections" (Jones, 1974, p.17). In 1974 in a review of the studies of the 1960s, Jones wrote: "I have never published a formal critique or evaluation of the way in which those studies were conceived and executed. The seriously interested student could extract and reconstruct all of this from the final report, although there I was not primarily interested in reviewing defects and deficiencies in our concepts or performance" (1974, p.3).

The following critique (though not a "reconstruction") is by such a seriously interested student, and concerns research in South and South East Asia and in West Africa. Firstly we shall examine methodology for measuring market performance. We shall examine the use of the correlation co-efficient as an index of competitiveness, and the use of static and dynamic analyses of the distributive margin, criticising them methodologically and interpretively, and suggesting possible refinements. Secondly, we shall examine the relationship between empirical data used in such research and the conclusions derived from them, and suggesting possible reasons for the observed lack of logical relation.

2. The correlation coefficient as an index of market competitiveness and "integration"

In Cochrane's normative model of economic markets for agricultural products, "The single market does not stand alone as a determiner of either price or quantity....the

actions of buyers and sellers in a particular market are always influenced to some degree by the price signals and substitutional possibilities in other related markets" (1957, p.34). To that extent markets are integrated. The degree to which price formation for agricultural commodities in one market town is related to the process of price formation in other towns can be indicated by the zero order correlation coefficients for wholesale prices in these markets. In India, Cummings, for instance states that high correlation coefficients reflect supply and demand in an interconnected market rather than local responses to local forces, that they indicate "association of prices" (op.cit., p. 82). The concept implied by the word "integration" or the phrase "association of prices" is easily and often confused with that of perfect or effective competition. Yet in this context integration is essentially a spatial concept (rather than connoting types of (industrial) linkages as in "vertical and horizontal integration"). We shall see that a spatially integrated market does not have to be competitive.

Yet according to the reasoning of Cummings and others, if prices are at perfectly competitive equilibrium levels, then differences in prices between places would reflect only transport and processing costs and r = + 1.00.

Both Cummings and Lele account for real world coefficients in India being less than 1.00 by the facts that temporal and spatial frictions occur as a result of transport costs, bottlenecks and uncertainties, lack of knowledge (though "traders were found to be highly knowledgeable about price movements in various market centres" (Lele, 1971, p.25), lack of product homogeneity and uncertainty as to the direction of movement of future prices (Cummings, op.cit., p.83; Lele, op.cit., p.21-24).

Despite these imperfections, Cummings presents data showing modal coefficients of price series between 27 North Indian wheat markets from 1956 to 1974 of 0.85 during times

of free trade and 0.65 in times of Government intervention (op.cit., p.88,95). Lele found all price correlations between Delhi and five Punjab wholesale wheat markets from 1955 to 1965 exceeding 0.9 (1971, p.89). Gupta found modal correlations of 0.71 for wheat, 0.79 for rice, 0.85 for jowar (sorghum) and 0.91 for groundnut in selected markets of UP (1973, pp.118-125). Thakur found 71 per cent of all correlations among seven Gujurat wheat markets from 1965 to 1971 to exceed 0.75 (1974).

Paddy and rice markets do not appear to give such striking results. From her correlation analysis of Tamil Nadu paddy and rice wholesale prices Lele concludes, "Because patterns of market flow are so diverse the correlations in Tamil Nadu are slightly lower than obtained in Bengal." She quotes only three cases of correlations exceeding 0.8 (out of an inadequately explained but likely total of 507). This is a lower result than would have been obtained randomly. She also notes "correlations between Madras and the primary markets are high although there was little flow of rice to Madras (from them)" (op.cit., p.96-8, p.245-6). Cummings, during the course of a study of transport margins finds "on the average spatial price differences tended to be less than transport costs" while correlation coefficients were high.

Thus high correlation coefficients may characterise a situation of physical disconnection and low coefficients characterise regions with complex trading patterns. Such results call into question the equation of high correlation coefficients with the action of regulating flows of commodities within systems of interconnected markets.

Results of "bivariate correlation analyses of synchronous data" for West Africa are much more problematical even than those of Lele. Jones has confessed that "When we first undertook to calculate the intermarket price correlations it was not entirely clear what we would do with them when we got them" (1974, p.20). He had earlier reported that

of 4,836 co-efficients calculated by the Stanford project only 19 exceed 0.9 and 424 are zero or negative. He explains such anomalies with reference to poor market information and data defects (1968, p.114). Anthonio (1968, p. 222) mentions very low price correlations for all staple foodcrops between each of 18 central provincial markets and observes also that the smaller and more decentralised the rural market the lower the co-efficient. Thodey (1968) finds high co-efficients for cowpea (almost all above 0.8) but lower ones for rice and maize (almost all below 0.7) which he attributes to weak, localised and less integrated marketing systems. In Gilbert's analysis of agricultural marketing in Northern Nigeria the modal co-efficient is 0.65 for cowpea, 0.55 for rice, 0.45 for sorghum and 0.35 for millet (1969, p.249). He explains these results with
and demand linked indirectly through overlapping supply
reference to the dispersed nature of supply/areas characterised by poor information, and a slow supply response and geographically articulated through Kano. However, there is no evidence presented to support this explanation. It must rather be considered as a hypothesis. Ejiga's experiments with time lags show very inconclusive results for his crop, cowpea. Only 5 per cent of his correlation co-efficients were statistically significant at the 0.01 level, though it is surely very likely that the Nigerian civil war and its associated disruptions share some of the explanation of this apparently low level of 'integration'. But Ejiga finds some cities which are apparently well connected by transport but which are insignificantly or negatively correlated. Such results he is inclined to attribute to sampling errors or years of poor production (1977, see p.293).

Hays' results for millet and sorghum in Northern Nigeria show only 1 per cent of correlation co-efficients exceeding 0.8 and deteriorating sizes and distributions of co-efficients between 1958-65 and 1969-71 (1975, p.72).

There is some evidence in his further case study around Zaria that the closer spaced the markets the higher the co-efficients but this is not generally supported by the other authors' experiments at widely varying geographical scales.

Kohlers in his case study of Niger for CILSS (1977, vol.2 N, pp.35-44) analysed technically small samples of monthly data for the single years 1971, 1973 and 1975. In 1971 two thirds of his co-efficients were statistically insignificant at 0.05. In 1973 (the year of the drought) most were significant and half exceeded 0.8 (whereupon he concludes that the marketing system was highly competitive). In 1975, however, only 20 per cent were at all significant. He is unable to make any conclusions from this.

Berg for Upper Volta analysed similar data for the years 1962, 1963 and 1976. In the early periods he found 20 per cent of co-efficients significant at 0.05 and the highest level of correlation between two towns not connected by trade or indirectly by transport. Berg says that significant negative correlations are "nonsensical" (1977, p.97). In 1976, 90 per cent of his co-efficients exceeded 0.9 and were significant at 0.05 (op.cit., p.26-7). This signified market integration. His overall conclusion attests ambiguous results, and he feels that "more fieldwork would generate better data for firmer analysis" (op. cit., p.100).

2.1 Price series data

One very obvious source of explanation for these interesting results is the data used.

Lele made "a special effort....to acquire prices of uniform varieties for the markets studied" (op. cit., p.24) and obtained weekly wholesale prices for Sort I and Sort II paddy and Sort I rice in 13 markets in Tamil Nadu from 1955 to 1964 (op. cit., p.246). "Sorts" (a category of the Indian Civil Supplies Commission not of the private market) are

much larger classificatory categories than individual varieties. Anthonio has used official monthly retail prices statistics for 7 staple foodstuffs in 18 main markets throughout the country for the period 1959-66. Thodey uses Nigerian Federal Office of Statistics average monthly retail prices for 8 commodities in 10 cities over 9 years; Gilbert: monthly price data for 3 commodities over 50 markets between 1952-65; Ejiga: monthly retail prices for cowpea in 17 markets over 1959-72; Hays: monthly retail prices for sorghum and millet for 15 markets from 1958-71. Kohlers used monthly millet prices in between 7 and 14 markets for the single years 1971, 73, and 75 and Berg monthly millet prices in 5 to 11 markets for 1962, 63 and 76.

With respect to Nigerian data Jones quotes Gilbert's memo on data quality to the effect that the monthly prices from the Ministry of Agriculture were "collected by low ranking employees with minimal supervision from above;" that conversions from local volumetric to standardised units were at the discretion of the investigators; that there was no necessary standardisation of the time of month when the "monthly" data was collected (they are therefore not monthly averages but spot data collected monthly); and that variety and quality for the crops were not specified. Monthly data from the Federal Office of Statistics in Northern Nigeria were subject to the same problems and additionally suffered many gaps and obvious fakings (Jones, 1968, p. 99-100). Thodey notes amongst others that even daily prices are a range and there is such a consensus on the individualisation of price formation through haggling as to call into very serious question the analytical value of this monthly data. Berg has subjected the data for the ex-French colonies to considerable scrutiny (see his most thorough paper, 1977a) and concludes in his case study of Upper Volta "the underlying data are so weak that it is difficult to know whether the ambiguities and inconsistencies

in the results" (or correlations) "derive from data unreliability or whether they reflect the realities of grain market functioning" (1977b, p.26). Hays used monthly data from the Nigerian Crop and Weather Reports but wisely collected his own price information as well as using "bucket and balance" in local periodic markets and Kano. His conclusion is that official prices underestimated the real price per lb. in dry months and overestimated it in wet months; each by 3.5 to 5 per cent. Jones, having quoted Gilbert's very severe reservations at length, immediately describes the Nigerian prices as an "apparently rich body of data" (1968, 0.101) because of the length of the time series and the number of markets. In 1974, however, he is writing: "I would like to stress that these data were not of high quality and that people who knew about the price series insisted that they were worthless" (1974, p.18). Polly Hill says in her review of Hays' work (1976, p.85) "I regard them as so unreliable as to be unworthy of the detailed analysis they have received"

2.2 Other problems with the correlation co-efficient

However, there are other reasons why high correlation co-efficients may not indicate integration and perfect competition. *Ceteris paribus* in a time of secularly rising prices due to population growth and increased effective demand relative to supplies, the co-efficient will rise because absolute distances from the trend line will be relatively less deviant provided marketing costs remain constant. *Ceteris paribus* the longer the time period for which, and/or the wider the range of crop varieties over which price series variates are being averaged for correlation, the higher the co-efficient, the lower the significance level and the greater the likelihood that day-to-day price fluctuations which provide traders with their profits, are smoothed away. Lele, for instance, in India, used weekly averages for "sorts" not varieties. Cummings used monthly averages, and none of the correlation co-efficients computed for

West Africa use data collected more frequently than monthly and as we have seen above they cannot be considered (as is done by most of the researchers concerned) as "averages."

Then local markets which may trade absolutely or relatively little with each other or indeed anywhere else may have similar price responses to temporally synchronous local forces of supply and demand. Further, markets may not trade with each other at all but could be highly correlated via the price and trading relationship of a joint destination market.

Then monopoly procurement at fixed prices (as practised at times in Sri Lanka and India as well as officially in French West Africa) will yield intermarket correlations of 1.0, as will identical time series for two places.

We must note a common incidence of tautology in the definition of integrated markets as characterised by high co-efficients and the conclusion from their occurrence that markets are therefore integrated and competitive.

We must also caution against the use of r^2 to "explain" the contribution of prices in town x to prices in town y in correlation matrices (see for example Kohlers 1977, p.41, note to table) since additively the "explanations" of several towns in the price of any other soon exceed 100 per cent and we are not given much help with the identification of the major price forming markets or the direction of causality in price formation.

High co-efficients indicate stable margins and/or stable prices and by themselves could just as easily indicate monopoly conditions as perfect competition. Since, in India and in West Africa they obviously do not indicate stable prices, they must indicate stable margins. Yet at the same time as finding "high positive correlations", Lele found considerable variability in the storage margin (1971, p.142), transport margins (p.110-111) and milling margin (pp.207-211). Similar inconsistency characterises the West African material. The result is confusing to say the least.

Blyn (1973) makes the point that it is the <u>residuals</u> on long price series, such as those used by Cummings and by Lele that should be correlated to indicate market integration, after time trends (due to rising demand because of population growth acting on a whole region) and seasonal trends (reflecting a common supply pattern) have been controlled. This is, of course, impossibly difficult when the price series data is for short periods as is much of the West African data and if the seasonal trends are not spatially or temporally synchronous. Ideally for short time series, one might correlate the residuals of the polynomials which minimise residual elements, but problems with missing data in the price series would often prevent this exercise. Blyn, using Cummings' long Indian price series data and controlling in the way described above found greatly reduced levels of "integration" and concluded: "It does not seem likely that perfectly competitive conditions exist to the extent indicated by 0.90 correlations." <u>With potential autocorrelation in time and in space the validity of the technique is further weakened.</u>

But Blyn also makes the point that markets may well be integrated and yet have low correlations because market towns are centres of supply, non-final demand and final demand. It is possible for an equilibrium price in a market to be anywhere between a low value, making it just worthwhile to export grain, to a high value, making it just worthwhile to import. Most market towns are neither primary exporters nor terminal importers but located along a continuum between the two. <u>Thus price series correlations can be lower than it might seem, simplistically, that they ought to be, and still reflect an "integrated" situation.</u>*

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* Jones has independently developed and has tested for Sokoto and

Kano in Northern Nigeria a model incorporating similar lines of reasoning, which he calls the Gold Point Model (1976, p 319-321).

Finally we shall see in the discussion of methodology for the analysis of margins that it is perfectly possible in the case of two-way trade between market towns (itself neither necessarily reflective of competitive or monopoly marketing conditions) that the correlation co-efficient be zero or negative.

It is quite clear that by itself, the correlation co-efficient is inadequate as a proof of either market integration or competition; it can only serve as an indicator of likelihoods given many assumptions, about market structure and conduct, until and unless the technique is greatly refined, its diagnostic use for market competitiveness should be abandoned.

3. The analysis of marketing margins

The second way in which allocative efficiency in marketing is partially analysed uses price spreads between producers and consumers (and their relation to costs). In turn these have taken two forms : Static and dynamic analysis.

3.1 Static analysis

This consists of simple computations of the share of the consumer's price got by the producer and got by traders at each stage in the marketing process. These are used for comparison with the same product at different points in time, or in different regions of a country, or with other commodities in the same or other regions, or with the same commodity in other countries (Holmes, 1969, ch. 6; Mahalanobis, 1972; Sriraman et. al., 1963, p.207; Wollen and Turner, 1970) in order to give general insights into relative positions on a scale of allocative efficiency.

But it is difficult to control for inter-product differences in perishability, for the number of services either necessary or actually rendered in marketing, for different levels of capital intensity and of factor costs in different countries. Such standardisation is necessary

for meaningful inferences to be made about efficiency. In addition, margins are often static in time and place, neither accounting for storage nor for intermarket trade. Static margins are unable to be used to assess whether the behaviour of the distributive margin is independent of raw material prices. In a competitive market changes in the margin should reflect changes in the supply and demand for marketing services, the former determined by factor prices and technological change and the latter by consumer income (Wollen and Turner, 1970, p.67; Shepherd and Futrell, 1969, p.252). Long time-period analysis needs furthermore to be conducted in deflated constant prices to enable meaningful inferences to be made (see Venkataramanan, 1979). Provided such adjustments are effected, then the static analysis of the distributive margin can be used in a comparative context.

3.2 Dynamic analysis

One way in which the analysis of margins is considerably improved, and made dynamic in time or space is by using the hypothesis that markets are efficient in pricing terms if off-season price rises are approximately equal to storage costs, if inter-market price differences are approximately equal to transport costs and if changes in the form of the product (e.g. paddy to rice; millet to couscous) are approximately equal to processing costs. Only Harriss (1979a) in India to date has analysed all possible permutations and combinations of storage, processing and transport costs and their relations to margins in a system of 10 market places, and very generally time lags have not been incorporated, apart from work explicitly concerned with storage. Frequency distributions of price differences between producer markets, other producer markets or terminal markets, if compared with the relevant marketing costs determined by case studies or sample surveys of trading firms, have been used to reveal the extent to which the hypotheses are upheld.

Problems with this method include value judgements of acceptable levels of return if margins always exceed costs, explanations of loss if margins do not exceed costs, and explanations for the commonest case where margins oscillate between profit and loss.

Several economists researching the market behaviour of crops grown in West Africa have run into this interpretative difficulty. Hays, for millet and sorghum in northern Nigeria notes unlagged monthly spatial price spreads frequently in excess of transfer costs (1976) and Hays and McCoy presenting plots of the differences between "supplying market place prices" and those of Kano minus transport and handling costs, show both possibilities of high profits and high losses and systematic and sporadic reversals of relationships which they do not satisfactorily explain taking refuge in the fact that annual average price differences between markets "are closely related to transfer costs" (1977, p.191). Kohlers for Niger (CILSS 1977, vol.2,N, p.45-6) and Berg for Upper Volta (1977b U-V, p.102-3) present the results of plots of unlagged monthly spatial price differences minus transport costs. These "detailed" plots also show possibilities of high profits and losses and highly uncertain reversals of relationships, attributed to poor estimation of transport costs. Kohlers, however, presents annual average inter-market price differences (op. cit., p.44) with large standard deviations; but no transport costs data to help us to interpret it. Berg for Upper Volta (op. cit., p.27) concludes with unhappy caution: "Price differentials" (are) "substantially greater than transport costs which might be interpreted as indicative of market imperfection" (my italics).

Two researchers have used regression analysis to determine either the static relationship between retail and wholesale prices (Anthonio, 1968) or the relationship of prices in place a with those in place b (Ejiga, 1977). The constant is respectively the mark up or the transport costs.

In Anthonio's regressions if the constant approximates zero a percentage mark up is assumed whereas if it approximates 1.0 there is a fixed margin. For Ejiga: the explanatory power of the independent variable and the statistical significance of the co-efficient of variation indicated whether or not spatial price differentials were related as hypothesised. The co-efficient of the mileage variable (a transport cost proxy) in the spatial price differentials was then compared with the co-efficient of the mileage variables in a known regression of transport costs and mileage. Anthonio's regressions showed that wholesale prices explained only 0.15 of retail prices in long distance trade, and fared no better with lagging (1968, p.182-4). Ejiga's regressions showed that "absolute price differentials and mileage are not randomly related" a conclusion reminiscent of sledgehammers and nuts. However, his data shows that they are generally minimally related in a weakly significant way, giving rise to the familiar and intractable problem in standard "structure conduct and performance" analysis of value judgements. Bateman (1976) and Breimyer (1973) in their methodological critiques conclude that there is no proxy for the analysis of profitability at the level of the firms comprising the market. The procedure generally used as a proxy for the firm is to personify towns and calculate profitability from the price data and survey or official data on costs of transport, storage, handling etc. Anthonio shows levels of static mark-up for 6 foodcrops varying between 8 and 160 per cent (1968, p.180, Table 5.9) but later remarks on the occurrence of negative profits between regional centres for millet (1968, p.247). Ilori calculates gross profit margins for traders of 12.1-14.6 per cent of retail prices for urban traders and 10.2-12 per cent for rural ones (1968, p.226) but no cost data is given. We have no idea of the returns for services performed and for the period to which these profit margins refer (presumably a month). Since average prices are used and since Ilori has already

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mentioned high concentration and polarisation in the structure of an otherwise "competitive" market (op.cit., p.193) it is clear that (a) profits can be high (b) the research on profitability is too superficial to be at all meaningful or comparable with results elsewhere.

Finally, with reference to the analysis of margins over time three points may be made. Firstly if seasonal price fluctuations are discussed, it is more useful to calculate the percentage fluctuation of the preharvest maximum over the post harvest low rather than the variation about an average which the highs and lows have helped to create. It is not always clear in the literature which measure of seasonal price variability is used. Second, the relationship between post harvest price rises and storage costs is extremely sensitive to the interest rate selected for capital locked up in stock for which rate careful justification needs to be given; it is also highly sensitive to the quantity and costing of storage losses, about which insufficient is generally known. Third, to use urban prices for such calculation when storage does not take place in urban areas (see for one example Ejiga, 1977, p. 282, p.219-224) is problematical and needs at the least some justification.

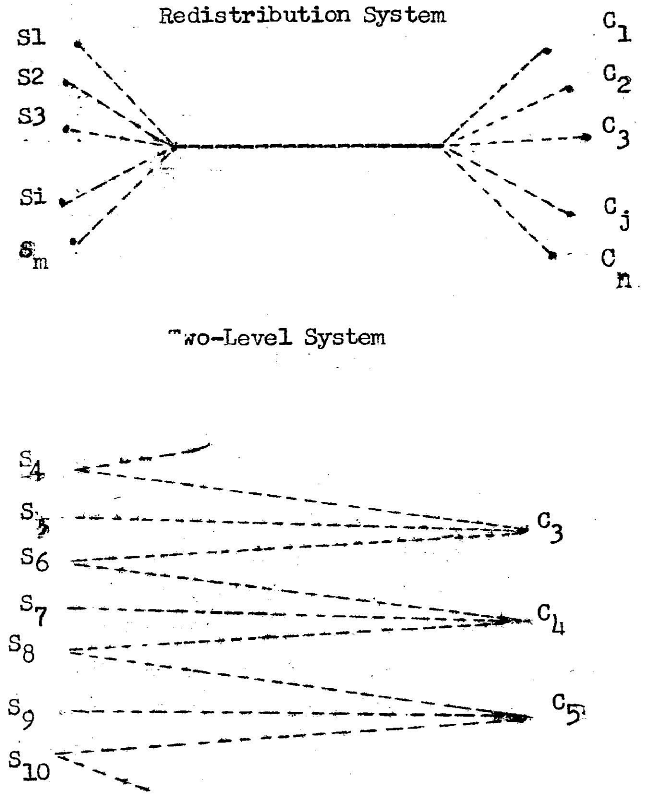
3.3 Spatial and temporal refinements

The simplifying assumptions made in these analyses of price behaviour over space and time are very crude. Jones, amongst other economists, in synthesising the seminal theoretical work on hierarchies of central place systems of the German geographer, Christaller (1933) with the empirical studies of Skinner (1963-4) has advanced our understanding of the likely complexity of the economic process over space. He distinguishes the pricing performance of a redistribution system from that of a two-level system (see Fig. 1 and 1968 pp.117-119). Of the two-level system, he says:

"This model has great appeal because it seems to accord with the qualitative information we have

about the behaviour of traders. It, too, should be susceptible to statistical test, but such a test must await more precise mathematical formulation of the model than we have been able to achieve" (op. cit., p. 119).

Figure 1



S = Supplying Centres

C = Consuming Centres

Though advanced over a decade ago this refined model has only recently been mathematically formulated (Zemanian, 1979), and its statistical testing has yet to be carried out. However, one of the major unrealities in Jones' model may be his assumption that centres may simply be classified into "supplying" and "consuming" settlements (see above), carrying the implication that supplying centres (a) do not consume and (b) only over export the commodities in question. None of these analyses of correlations or of margins either in South Asia or in Africa incorporate consideration of the possibility of changes in the geographical direction of price formation. All these marketing models assume a unidirectional flow of commodities from rural origin to urban destination as in Diagram 2 (1). Here

$$M = U_r - (\frac{1}{C}) R_P$$

where M is the marketing margin, U_r the urban price for rice and R_p the price of rural paddy and C is the milling conversion ratio.

Timmer (1974) in criticising this assumption in a paper on rice marketing margins in Indonesia, suggests firstly that, while retail prices in urban centres may be determined by paddy prices plus marketing costs in the post-harvest period, in the pre-harvest off-season rises in urban retail rice prices may draw paddy from rural areas. According to Timmer, it is not correct to regard any one price as necessarily always functionally dependent upon another, as is done in all standard neo-classical texts on marketing economics (e.g. Shepherd and Futrell, 1969; Kohls and Downey 1972; Tomek and Robinson, 1972).

He further suggests that in a model landscape with a rural producer market and an urban consumer market, prices will rise seasonally to reflect the normal costs of storage, as in Diagram 2. When the urban price reaches to in

diagram 2 it levels out. This happens in Indonesia because of the operation of a Government ceiling on retail rice prices (and presumably sufficient authority to control a black market). It may, however, happen in any free or partially controlled market at a point at which it becomes profitable to import supplies from elsewhere. Meanwhile, rural hinterland prices rise to cover storage costs. So long as rural demand is significant, rural prices will rise to a point where M (minus milling costs) is reversed and it is profitable to ship rice back from urban to rural areas. Until that point (t_o to t_i) in 2 (ii) the rural and urban markets will be dissociated. At harvest time rural prices drop before urban ones. The margin between the rural (paddy) market and the urban (rice) market can be zero or negative or it may simply be less than M as in Diagram 2 (iii), (t_o to t_i) for the simple unidirectional model to be invalidated. The fact that rice may not flow back physically does not alter the principle that the markets are "dissociated."

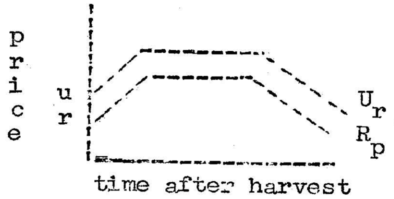
Timmer tested his hypothesis of a two-directional margin by taking for each month

$$M_m = U_{r_m} - (\frac{1}{e}) R_{pm}$$

for rural and urban markets in every province of the Indonesian archipelago. He applied a regression analysis of variance to quarterly subsets of M_ms divided according to the agricultural calendar. This showed that every province resembled either Model 2 or Model 3 (Diagram 2 (ii) and (iii)), though he allowed that in the case when a harvest was sufficiently large to depress the urban price at all stages below P_u, Model 1 (Diagram 2 (i)) might exist (1974, p.149-159).

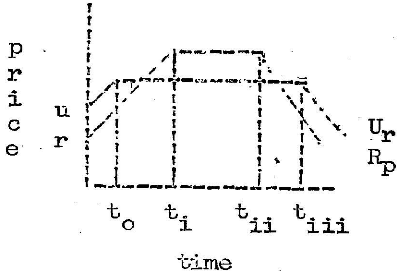
Diagram 2: Models of Price Formation :

i) unidirectional trade and price formation



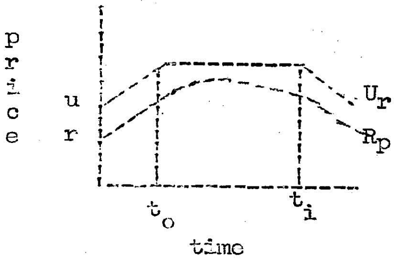
Timmer's model I

ii) two way trade and price formation



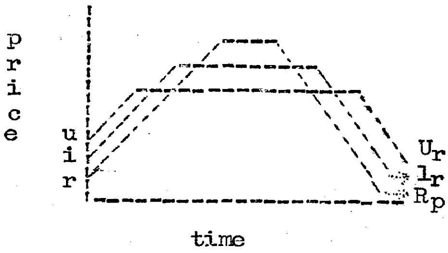
Timmer's model II

iii) unidirectional trade, temporary market dislocation



Timmer's model III

iv) three way trade



u : urban consuming centre

i : intermediate market

r : rural producer market centre

The unidirectional model of price formation seems to have been taken for granted in both Southern Asia and Western Africa and is indeed the basis for calculations by parastatals of budgets in foodgrains supply. But Timmer's models in allowing for periods of dissociation and even for reverse price relationships might account for the large number of low and/or statistically insignificant co-efficients found in correlation analyses and also very definitely calls into question the interpretation of market competitiveness derived from the analysis of long term average margins which may be self cancelling.

Very detailed analyses for weekly wholesale prices for 5 types of paddy and rice wholesale prices in 10 towns over 100 weeks in 1972-4 in South India (plotting graphically intermarket price differences plus transport costs, and where appropriate, processing costs) showed that Timmer's hypothesis is likely to be substantially verified though oversimplified, and unable to explain sudden uncertainties (Harriss, 1979a, pp.151-199). This South Indian analysis shows that price levels for both rice and paddy in the larger consuming centres of Tamil Nadu can and do fall below those of rural market towns both in a regular way over several weeks at a time and in an uncertain short term way. Colman in a study of regional price variations for food and feed grains in the U.K. (1972) also has corroborative results, independently identifying regional seasonal price reversals, stable from year to year, in the economic and spatial markets for wheat and barley. Similar large seasonal reversals in price relationships have been empirically identified by Harriss for rice, cholam (sorghum vulgare), and toovar dhal in Karnataka and Andhra Pradesh(1979b).

The mechanism by which such relationships occur in free or partially controlled markets implies imperfectly competitive performance. Three conditions are important here. The first condition is that the urban centre (or the region) keeps its price levels low by importing from areas outside the local

system which have lower costs of production and/or lower commodity wholesale purchase prices or have different dates of harvest. The second condition is that the urban price level is sufficiently low to enable rice to be exported back to rural areas at profit. The third condition is that these rural areas cannot import directly from the lower cost suppliers located outside the system. Under such conditions then the urban commercial sector (or that of a particular region) has a spatial monopoly control of trade.

For West Africa, plots of price differences between settlements have been carried out (Hays and Mc Coy 1977, p 185-6; Kohlers, 1977, p.45-6; Berg 1977b p 102-3) but these authors failed to interpret them adequately or to perceive their significance. Berg, for instance, attributes his interpretive difficulties to data unreliability and suggests that with better data and more leisurely exploration of those data some interesting insights can be obtained (op. cit. p 105).

But these price plots firstly call into question the value of any calculations of the profitability of trade which are based on annual averages. Secondly they suggests the extreme likelihood of two-way or multidirectional trade mediated through urban centres with spatial monopoly control (attested using evidence for commodity flows for Ouagadougou bu Ouedraogo, 1974 and Wilhelm 1976; just as it is for Northern Tamil Nadu by Harriss 1979, and for Southern Tamil Nadu by Balasubramaniam, 1978). Thirdly the price plots suggest that should the price data be considered reliable then the testing of Timmer's hypothesis elsewhere would yield results within the neoclassical paradigm more valuable and interesting both in substance and to the cause of research than what has been attempted hitherto. Since all markets are in some way imperfect, we should concentrate research on regularities in the behaviour of imperfect markets rather than attempting to evaluate them by subjective standards in

relation to a subjectively defined operationalisation of the concept of perfect competition.

3.4 Suggestions for improvement in method

The conclusions from a study of methodology thus suggest that the use of the correlation co-efficient as a diagnostic tool indicating competition should be abandoned, and that its use to define "integration" is inadequate without refinements. The static analysis of margins requires comparative use to be meaningful. The dynamic analysis of margins faces problems with value judgements of "acceptable" levels of profit, which necessitate comparison of price/cost relationships with the same product elsewhere or with profits in different sectors of the economy. Profitability calculations based on price/cost relations derived from long term average margins are underestimates in situations where reciprocal trade flows exist. In such cases there is no proxy for disaggregated analyses of intermarket price differences scanning for the direction of profitable trade and calculating profitability accordingly.

4. The relationship between data and conclusions, conclusions and policy

At the end of Jones' synthesis on the marketing of staple foodcrops in Tropical Africa (1968, p.272), having devoted consideration to a number of market imperfections, he states: "Our studies have clearly demonstrated that African traders, operating through freely organised markets, have the capacity to carry out all normal marketing functions in a reasonably adequate fashion" (my italics) and Jones quotes Whitney approvingly to the effect that "The marketing system for foodcrops destined for consumption in Nigeria" (actually S.E. Nigeria) "was a remarkably well-articulated, self-adjusting mechanism, which certainly had the capacity to react to changes in the external economy" (p. 272). The policy implication is therefore that the State should not intervene to replace or to regulate this system but only to provide improved physical infrastructure.

We shall examine the basis of the conclusion of the "structure, conduct, performance" school; that, in general, agricultural commodity markets are satisfactorily competitive given their environment. In so doing it should be understood that care has been taken to try not to distort argument by quoting out of context for this would obviously reduce the constructive role of this critique.

Thodey states quite clearly in the summary of his thesis "The Western Nigerian staple food marketing system is operating rationally and is quite effective in performing its functions....The returns to such scarce factors as capital and entrepreneurship is high while that to labour is low. Even though the marketing system is subject to large and frequently irregular price movements, and its pricing efficiency is only moderate at best, it is still very responsive and adaptive" (1968, p.ii). "Price formation results from supply and demand under competitive conditions" (1968, p.179). These conclusions follow observations that "for the majority of producers, the very imperfect market information presently available to them their need for cash, the small volume of their sales and the costs and effort in carrying unsold goods home from market tend to reduce their bargaining position at the time of sale" (1968, p.57). "Cheating and deception are practised to some extent by traders" (confirmed by Ilori, 1968). In some cases violence was threatened (Thodey, 1968, p.191).

In local markets Thodey notes some evidence of collusion (1968, p.178) and discriminatory individualisation of price formation "Even the same trader has a wide range of (daily) prices according to haggling" (p.179), a conclusion also supported for Ibadan by Ilori (1968). Thodey also notes evidence for oligopoly "For all commodities a small number of large traders are influential. They have a profound effect on the price formation process....but act more as barometers than monopolists." Thodey mentions trade associa-

tions in his case study of Ibadan retail markets as a barrier to entry into trade and as facilitating price fixing in urban markets (1968, p.28, p.55) and elsewhere states "trader competition at producer markets is weak or non-existent" (op.cit., p.61)

As regards long distance interregional trade in Nigeria, he notes "some evidence of monopoly at long distance" (1968, p.177), that the cowpea exchange system is "long distance, oligopolistic, more stable" (op. cit., p.180), that "the relatively few Yoruba traders involved in assembling and transporting cowpeas to Western Nigeria" (from the North) "mostly have large businesses and are not typical" (storing 6-8 times more in quantity and twice as long as the average Ibadan trader) (1968, p.1, p.4) but that long distance trade in rice and cowpea is less concentrated because of fewer large traders than is that of other commodities which are highly polarised (ibid). Ilori also shows that in Ibadan the largest 8 per cent of traders sell as much as the lowest 70 per cent. Thodey's analysis of spatial price differences in Nigeria showed 50 per cent exceeding double the costs of transfer (1968, p.183) and showed high volatility through time (op. cit., p. 185)

Thodey's conclusions do not seem to follow logically from his data, and his interpretation of his data seems confused.

Anthonio studying 7 basic foodstuffs throughout Nigeria came to the different conclusion that "markets are highly competitive at the retail and producer level but uncompetitive in the middle" (1968, p.156-7). He disregards evidence for oligopolistic practises of trade in retail markets. He identifies "oligopolist - oligopsonist - wholesalers" (5 per cent of all intermediaries (p.84)) dealing with other entrepreneurs amongst whom the circulation of information was highly secret (1968, p.52-4, p.84, p.192-4). In the Northern Savannah region he says that "most of the middlemen

come from the feudalistic wealthy class" (p.172) with migrants from the South beginning to compete, an historical process analysed and corroborated by Gana (1978). His analysis of spatial price differences showed wholesale prices "explaining" 0.15 of retail prices in long distance trade (p.82-4) but he found returns to storage more excessive than returns to transport which he interpreted as "signifying deplorable storage conditions" (p. 192-4) rather than excess profit making on storage in trade. We are not given any indication of effective competitiveness in interregional trade in this study.

Gilbert's research on sorghum and millet marketing system for Kano in Northern Nigeria casts doubts on Anthonio's notion of highly competitive retail markets. Gilbert reports that "retail and wholesale markets of Kano city have subdued competition" (1969, p.186) "there is not any clear relationship between numbers of traders and the degree of competitiveness (op. cit., p.285-6). Jones also admits the same problem in tallying structural indicators of perfect competition (numbers of traders, highly evolved bargaining procedures) with economic indicators (prices) within a neoclassical framework (1974, p. 97-98). Gilbert further states: "although marketing margins did not appear excessive" (p.288) "nevertheless large profits encountered, derived from a shortage of lorries as well as trade in marginal surplus and deficit areas which is risky" (ibid). He does not mention losses however. His policy conclusion appears to be unsubstantiated, namely that "the further development of a market oriented agricultural sector in North Nigeria does not depend on improvements in existing marketing systems for staples, but on the scope for increased production of cash crops and for increases in non farm employment" (1969, p.283). He goes on to suggest research and extension to increase the productivity of staples through high yielding varieties and fertilisers and implies that somehow through this mechanism greater

regional specialisation and an increase in cash crops will result. Gilbert following West African practice does not consider present staple crops as cash crops. The policy decisions are not discussed elsewhere in the thesis.

Hays, similarly to Gilbert, is also concerned with one Northern town, Zaria but he also analyses the system at the regional level using data from 15 markets from 5 states. His conclusion is that intermediaries are generally productive and that marketing services are provided at reasonable costs given their technical environment. The income of marketing intermediaries is low relative to the service performed (1976, p.139): "Organisation and conduct were typical of those necessary for competitiveness in the marketing system" (1975) "Markets are competitive but not integrated." The same conclusion appears in Hays and McCoy (1976). It is substantiated by observations that farmers had access to many buyers and that there were many intermediaries (up to 7; though Polly Hill in her review of Hays (1976, p.85-6) suggests that 7 intermediary-long-chains were rarely used meaning that the margin taken by each of the usually smaller number of intermediaries was larger than Hays has implied. However, although there was a "high degree of competition" in the local subsystem, Hays' analysis suggests a lack of competition between subsystems. Even so, he defends it against charges of being monopsonistic. The "excessive price differences among urban markets did not result from planned manipulation under monopolostic or monopsonistic conditions. They were rather a result of imperfections inherent in the system which are due to certain characteristics of production and marketing making effective response to intermarket price differentials difficult" (1976, p.139). Such facts are the existence of small sporadic surpluses, and poor price information and risk (Hays and McCoy, 1976). The explanation is "infrastructural." Hays shows that very high rates of return on money invested are possible but is most unwilling to concede that they are actually made. He

suggests that farmers make profits out of storage but he does not tell us either whether such farmers are also traders or whether urban traders finance rural storage. The relationships between producers and traders are neglected; and Hill also reminds us that the same neglect applied to the mechanics of the marketing system in rural Hausaland where 90 per cent of the Hausa population lives (1976, p.86).

Finally, in relation to Nigeria, Ejiga's recent thesis on cowpea marketing ends with the, by now, expected conclusions that "the cowpea marketing system is performing relatively well given the constraints which are found in all developing countries" (1977, p.366). "<u>All</u> the pricing efficiency analysis showed <u>no</u> evidence of monopolistic or large-scale exploitive practices" (ibid)(my italics). However, his data belie his conclusions. He admits that the correlation analysis of price series data "gives inconclusive results" (1977, p.153-5), and though he shows in a series of regression analyses, that absolute inter-market price differentials and mileage (a transport cost proxy) are not randomly related (p.309), they are also not at all strongly related in a statistical sense. The transport cost co-efficient that emerges from his equation is N 0.03 per tonne mile but the actual rate is N 0.056 so that it is clear that very large profits are being made over space. He tabulates data indicating large average profits on intermarket exchange and where an average can conceal any distribution of profits, we are perhaps justified to be sceptical about the relationship between his data and his conclusions.

With regard to cereals marketing in Niger, Kohler concludes: "The evidence suggests that the general assumptions about the private sector" (monopoly assumptions) "are probably incorrect" (1977, p. 82). His statement "the only restrictions on entry are government regulations and there is no evidence for excess profits (<u>op. cit.</u> p.24), does not square with his observation that "spatial price differences

are *not very conclusive*. Quite frequently the price differences exceed the transport costs" (*op. cit.*, p.45)(my italics) which he attributes to inappropriate calculations of transfer costs rather than to excess profit making by those who control the process of transfer. Furthermore, his observations about the profitability of storage and seasonal price fluctuations beg many questions. He claims that fluctuations are not excessive (p.52); he presents calculations of profitability in Niamey based on November and July prices which show large negative profits from storage for 60 per cent of the time, then he presents very partial data for the country as a whole (actually inadequate as a basis for generalisation) which shows that 40 per cent of interseasonal price variations *exceed* 100-150 per cent which is extremely high by Asian standards.

Berg in his summary of agricultural marketing policy and practice in the Sahel states *both* that there is little evidence for monopsonistic grain markets (CILSS,1977,vol.1, p.11) and also, that there is an acute lack of knowledge about how grain markets function (*op.cit.*, p.12,p.14). In the Upper Volta case study (Berg 1977b) he finds price integration over time unexceptionable stressing lack of high annual price fluctuations while a quarter of his price fluctuations are more than 100 per cent. He finds that rural markets fluctuate more than urban ones, a pattern perfectly consistent with two-way rural urban trade via a settlement around which traders hold a spatial monopoly *or* with an hierarchical system through which urban centres receive their supplies from numerous areas with different harvest dates (Jones, 1979, Pers. Comm.). Berg, however, blames bad data collection procedures for this "problematical" result (*op. cit.* p.54-55). On performance through space he has this to say: "A highly tentative analysis comparing millet price differences and transport costs between market towns shows price differentials *substantially* greater than transport costs, which *might be interpreted* as indicative of market imperfection" (*op. cit.*, p.27 (my italics)). These results do not square obviously with the carefully phrased but very strong

implication made earlier that markets are competitive and farmers unencumbered by debt and free to participate in a market characterised by large numbers of traders and ease of entry, (op. cit., p.24-5).

5. Conclusions

Five general points are worth making at this juncture. (i) The authors of the majority of economic analyses of agricultural marketing in West Africa and South Asia using "structures, conduct performance" methodology (or some personalised variation of it), examined here, display a serious lack of logical relationship between the data presented and the conclusions derived. In no other branch of economics does it seem possible to elevate so many value judgements to the status of scientific conclusions. There is a serious lack even of simple comparison of the results. To date and to my knowledge there has been no comparative critique even of the crudity of that presented here.

(ii) The conclusions to be drawn from the research are confusing and attempts to synthesise by unifying consensus seem to be guilty of oversimplification. For one example the reader can refer back to the conclusions of Jones for tropical Africa, mentioned at the beginning of this section 4. For another, Berg's attempt to summarise studies of the Sahelian States results in "there is little empirical evidence for monopsonistic grain markets" (CILSS, 1977, vol.1, p.11) and he concludes that Hays and Gilbert's research "indicate reasonably competitive rural grain markets, storage behaviour in line with what one would expect from a prudent farmer and no severe rural indebtedness" (a subject actually under researched by both writers (CILSS, 1977, vol.2 U-V, p.25)). More research along "structure, conduct, performance" lines will only resolve this confusion if it is consistent one way or the other. The past record reviewed here suggests the probability of this happening as very low indeed. Structure, conduct, performance methodology cannot cope conceptually with deviations characteristic of the real world.

(iii) The polar assumption that commodity markets are either perfectly (or effectively) competitive or monopolistic (an assumption reflected in any content analysis of vocabulary) allied to the equilibrium assumption that markets can be judged to be in a state of relative competitiveness for all plannable time, is clearly false. Jones writes sceptically "the concept of the conditions for a perfectly competitive market is useful in determining how a market is inefficient, but it is not very helpful in determining how inefficient a market is" (1974, p.16). One would like to add from experience: where, when and why. Indeed evidence is being interpreted on the assumption that the theory is right: evidence must be squared with theory or explained away.

Transactions even using the simplest classification of formalist economic theory may take one of nine forms as shown by Wiles (1961) and then by Gross (1966, p.63).

		Sellers		
		one	few	many
	one	o,o	o,f	o,m
Buyers.	few	f,o	f,f	f,m
	many	m.o	m.f	m.m

Agricultural marketing economics has been obsessed over the issue of whether markets in both an economic sense and in geographical aggregates of various sizes belong to the top left or bottom right corners of this diagram. Our unwillingness to locate rigorously an analysis of market behaviour anywhere than in the boxing ring corners has been nothing short of cowardly. Also given any one of these nine configurations of buyers and sellers and any distribution of concentration of trades and businesses, any distribution of profitability following from it, the use of aggregate(annual) average returns on money invested in trade tells us very little about the form of the process of resource extraction

from agriculture and of its accumulation in trade. Further, the discipline has also conventionally assumed the geographical linearity of trade. H is one-way only. If the unidirectional assumption about trade is relaxed it follows that evidence on competition based on rates of return to trade based in turn on the relationships between annual average price differences between markets and average transport costs is likely grossly to underestimate the profits made by two-way (or multi-directional) trade, profits which result from differences which will be cancelled out in annual or in seasonal averages. The allocative efficiency of the marketing system will be over-estimated. Its role as a sector accumulating profits, and reinvesting accumulated resources will be under-estimated.

(iv) The commodity market cannot be considered as an independent entity (see Jones, 1974, p.96) - "the desirability of pursuing a commodity approach became increasingly clear as price analysis and field studies progressed." This is a point closely related to the underlying assumption that competition in a commodity market maximises both welfare and productivity. It is clear that a competitive market may be necessary but it is certainly not sufficient for the maximisation of productivity, and that "welfare" is a function of specific social distribution. To concentrate attention on the concept of competition diverts attention from the structural interrelations between production, exchange and consumption. To concentrate attention on the behaviour of the commodity market (because of the relative ease of access of data on price, however poor) diverts attention from the interrelations between several commodity markets and between the circulation of commodities and that of money. These are essential to an understanding of the role that agricultural markets play in economic development including in technological change in agricultural production. They are essential to a full analysis of the

two functions of a marketing system, explained at the beginning.

(v) The fetishism of competition, however, is not entirely devoid of purpose, but its raison d'etre is ideological: related to a laissez-faire aversion to the type of State intervention which replaces rather than regulates private commodity markets. The tenor of the policy recommendations following the conclusions in this school of theses are strongly "anti-interventionist" and "pro-infrastructural." They all stress the value of State intervention in sectors of the economy such as transport and communications, physical market sites, and such aspects of marketing as information, grading, standardisation, processing and packaging (see Thodey, 1969, p.ii: 1968, p.64-76; Gilbert, 1969, p.276-7; Ejiga, 1977, p.26; Hays, 1975; Jones, 1968, p.98; Olatanbosun, 1975, p.111-120 and Helleiner, 1974, p.69). This is in order, as Thodey puts it, "to diminish anti social behaviour." More controversial reformist proposals include the creation of storage facilities and subsidised credit to larger traders or 'entrepreneurs' for them to expand operations (Whitney, 1968; Anthonio, 1968).

These conclusions can only follow logically from a verdict on the operation of the commodity markets as essentially competitive. Even so, they fail to face questions of the means and the nature of policy implementation and of the form of ownership of the proposed infrastructure. Jones writes "it probably could be demonstrated that we have got into trouble when we overlooked some of the assumptions underlying the models we were using. But in many instances more precise examination of the extent to which basic assumptions were satisfied would not have helped because, theory frequently does not predict the consequences of lifting assumptions" (1974, p.23; my emphasis). When the assumption about market competitiveness is lifted, it does not follow that the infrastructural improvements will

diminish "the anti-social behaviour" that is elsewhere denied to exist.

For the present therefore we must place a question mark not simply beside the methodology of conventional agricultural marketing economics in the "structure conduct performance" tradition, but also beside the history of interpretation of the results.

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